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MISCELLANEOUS.

88. Proposed by COOPER D. SCHMITT, A. M., Professor of Mathematics in University of Tennessee, Knoxville, Tenn.

Sum to infinity the series $5\cos\theta + \frac{7\cos 3\theta}{3!} + \frac{9\cos 5\theta}{5!} \dots\dots$

89. Proposed by G. B. M. ZERR, A. M., Ph. D., Professor of Mathematics and Science, Chester High School, Chester, Pa.

Find the earth's average density and mass, having given that the attraction of a ball of lead 2 feet in diameter, on a particle placed close to its surface, is less than the earth's attraction is the ratio 1 : 10250000, and that the density of lead is $11\frac{1}{2}$ times that of water.

90. Proposed by DR. E. D. ROE, Jr., Elmira, N. Y.

I shot my rifle at different ranges and found the following table of elevations e , for the vernier peep sight, for the given distances s :

s	e
0	21.0
100	24.5
200	28.5
300	33.5
400	40.0
500	48.5

The distances are measured in yards. How shall a table of elevations be constructed, giving the arguments e , for every five yards up to 500 yards? Do not give the whole table, but explain the method, and illustrate by giving a computation, carrying the result to three places of decimals. An actual problem.

*** Solutions of these problems should be sent to J. M. Colaw not later than May 10.

BOOKS AND PERIODICALS

Synthetic Arithmetic. By Merritt S. Cook, C. E. 177 pages. Madison, Wis. Tracy, Gibbs & Co. 1899.

The following is the remarkable summary on the title page: "Containing many new principles and improved methods for computation of both simple and compound numbers, multiplication by methods of 'aliquot parts,' complements and partial products, division by substituted divisors, etc.; new method for *squaring* both simple and *compound* numbers, also mixed fractions; the 'basic' system of computing simple interest, by which no direct multiplication by the rate or time is required; also a symmetrical, comprehensive presentation of the Metrical System, aided by the use of algebraic symbols, together with new methods for conversion to and from the English system; finally brief articles on elements and problems connected with electro-motive and water power. Also various miscellaneous problems and new solutions both interesting and useful." We do not think

that the author's "improved methods" of solution will be very favorably received. In his attempt at brevity the writer of the book has "gone off on a tangent" until he is far away from anything that is practical for use in a good text-book. There are some good things in the book, but what is new is for the most part bad, at least for teaching purposes.

J. M. C.

Supplement to Advanced Arithmetic. By A. W. Plummer, M. D., Principal of Olivet Street School, Los Angeles, California. 86 pages. Price, 30 cents. Boston: D. C. Heath & Co. 1898.

This book was prepared to supplement the shortcomings of the *Advanced Arithmetic* in the California State Series. It contains a practical summary of advanced work, and will no doubt prove very satisfactory to teachers who need to supplement their work in various ways.

J. M. C.

Primary Exercises in Arithmetic. Nos. 1, 2, 3 and 4. By H. J. Silver. New York, Cincinnati and Chicago: American Book Company. 1899.

These exercises are intended to supplement those of the text-books. They contain no problems, only the mechanical drill in the fundamental operations. The examples are already set down on the printed page, and the pupil needs only to record the answer in the blank space provided for the purpose. These exercises are well-suited for the little ones.

J. M. C.

Solution Book. By J. T. Fairchild, A. M., Ph. M., Instructor in Mathematics, Crawfis College, Crawfis College, Ohio. 255 pages. Published by the Author. 1898.

In this book solutions are given of a great number of problems that usually give teachers trouble. It covers less ground than some other books of its class, and is more particularly intended to give aid to the common school teacher. The problems have been taken from text-books, mathematical journals, and county examination tests. Several problems and solutions are reproduced from the *Monthly*. Many teachers will want to add this book to their collection.

J. M. C.

Advanced Arithmetic. By William W. Speer, District Superintendent of Schools, Chicago. 261 pages. Price 60 cents. Boston: Ginn & Co. 1899.

In the series of which this is the *Advanced* book experiences in "relating" are at the basis of the treatment. Great prominence is given to the idea of *relative magnitude*, and hence "ratios" are kept constantly in view. The book has many excellent features, but in the attempt to make simple ratios the key to the solution of all problems the "ratio" method has been overworked.

J. M. C.

Advanced Arithmetic. By E. McN. Carr. 373 pages. Prices, 45 cents. Richmond, Va.: B. F. Johnson Publishing Company. 1899.

Primary Arithmetic. By the same Author. 245 pages. Price, 25 cents.

The treatment of arithmetic as given in these books does not break from the "old methods." The arrangement is topical, and the plan of presentation proceeds upon the theory that principles should be clearly stated, and then illustrated by a reasonable number of appropriate examples and problems. The *Primary* book would have been better if classification had been made subordinate to gradation, at least in the earlier pages.

J. M. C.

Essentials of Arithmetic. By Gordon A. Southworth, Superintendent of Schools, Somerville, Mass. Book I, for Lower Grades, 186 pages, 40 cents; Book II, for Upper Grades, 311 pages, 60 cents. Boston: Thos. R. Shewell & Company.

These books have been received with remarkable favor. In the selection and arrangement of topics the author has shown a vigorous independence while his methods of presenting the material satisfactorily meets the requirements of the present time. The books are strong in oral work, up to date in business practice, and copious and varied in the supply of practical work and problems. J. M. C.

The Public School Mental Arithmetic. By J. A. McLellan, A. M., LL. D., and A. F. Ames, A. B. 138 pages. Price, 25 cents. New York: The Macmillan Company. 1899.

This book completes the series and completes the *method* of the text-books by the same authors based on the "Psychology of Number." The treatment is in strict line with the idea of number as *measurement*, and perhaps *undue* prominence is given to the *measuring* idea in some of the lessons. The exercises are varied and well graded. J. M. C.

American Elementary Arithmetic. By M. A. Bailey, A. M., Professor of Mathematics in the Kansas State Normal School, Emporia, Kansas. 208 pages. Price 35 cents. New York: American Book Company. 1898.

The pictures in this book are exceptionally good. The grading is not always well done—too much being required of the child in some places. The separate treatment of the fundamental operations is as unhappy as the combined treatment of the Grube method. The book has many valuable suggestions. J. M. C.

Plane Trigonometry and Tables. By Daniel A. Murray, B. A., Ph. D., Instructor in Mathematics in Cornell University, and formerly Scholar and Fellow at Johns Hopkins University. Crown 8vo., 219 + 95 pages, with a Protractor. Cloth, \$1.25. New York, London and Bombay: Longmans, Green and Co. 1899.

The book deals with the subjects considered in the ordinary course in plane trigonometry, in colleges and secondary schools. Careful consideration has been given to the early difficulties and possible future needs of the beginner. In the practical applications, marked attention has been given to the graphical method of solution, as well as to the method of computation. The historical notes throughout the work are a valuable feature. The book is accurately written, and has many points of excellence that justify its appearance. J. M. C.

The following periodicals have been received: *The American Journal of Mathematics*, January, 1900; *The Educational Times*, March 1, 1900; *Journal de Mathématiques Élémentaires*, 1^{er} Mars, 1900; *L'Intermédiaire des Mathématiciens*, Décembre 1899; *The Kansas University Quarterly*, October, 1899; *The Mathematical Gazette*, February, 1900; *Notes and Queries*, February, 1900; *Journal of Education*, January-March, 1900. J. M. C.